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⁽¹²⁾ UK Patent Application ⁽¹⁹⁾ GB ⁽¹¹⁾ 2 222 959 ⁽¹³⁾ A

(43) Date of A publication 28.03.1990

FIG. 2A

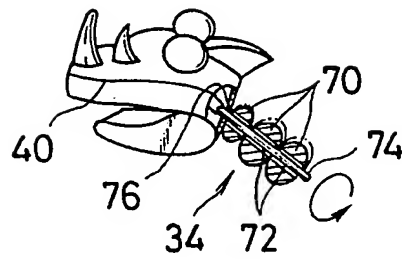


FIG. 2B

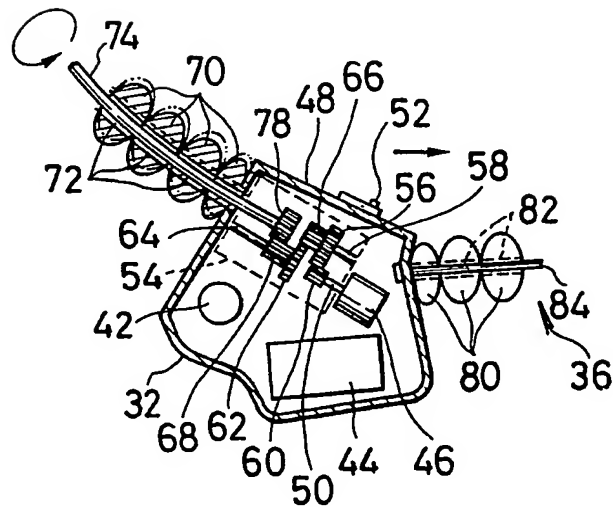


FIG. 3

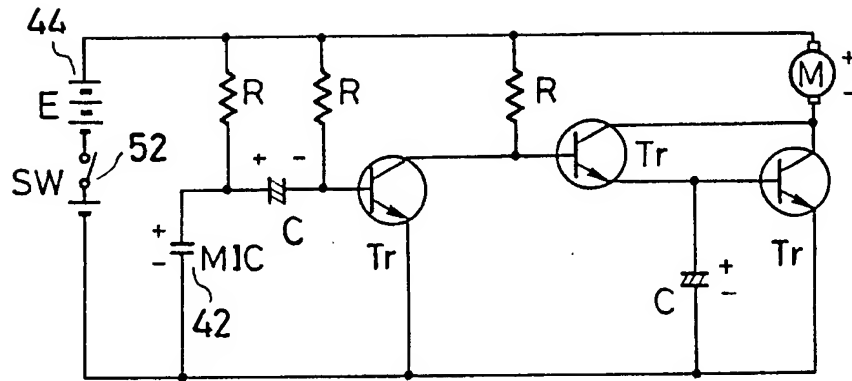


FIG. 4

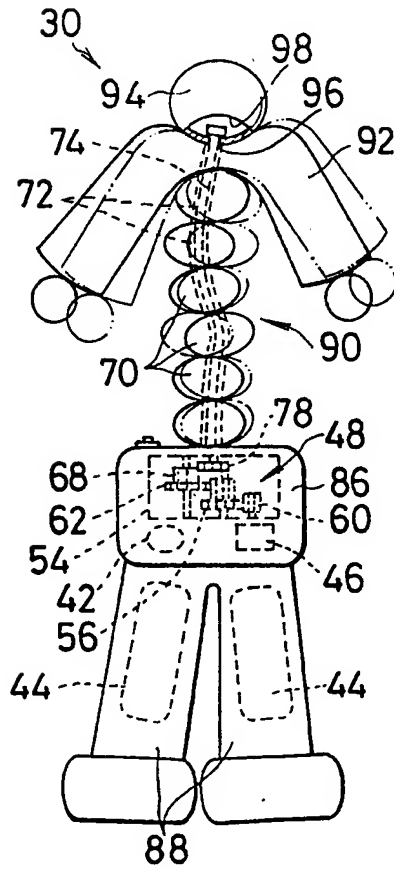


FIG. 5

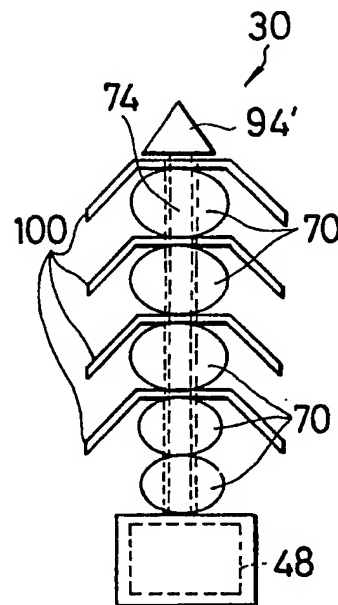


FIG. 6

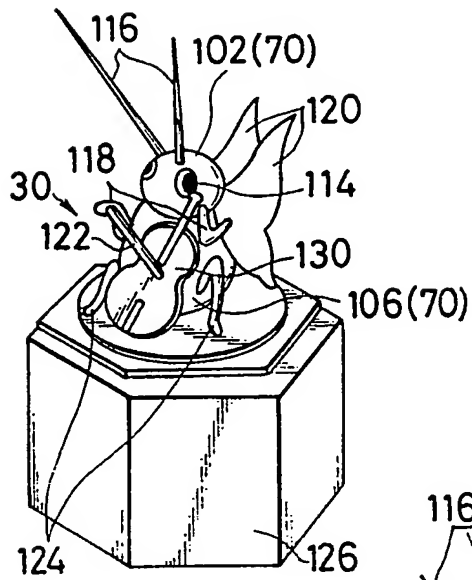


FIG. 7

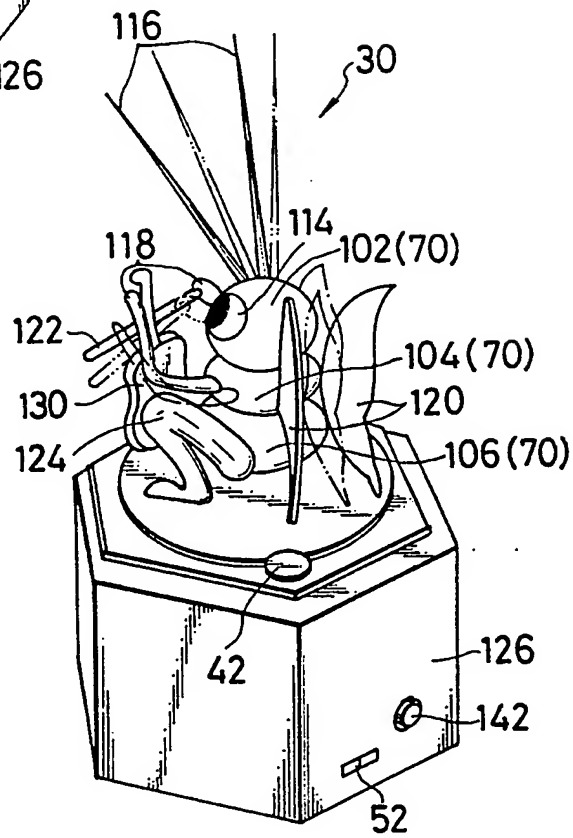


FIG. 8

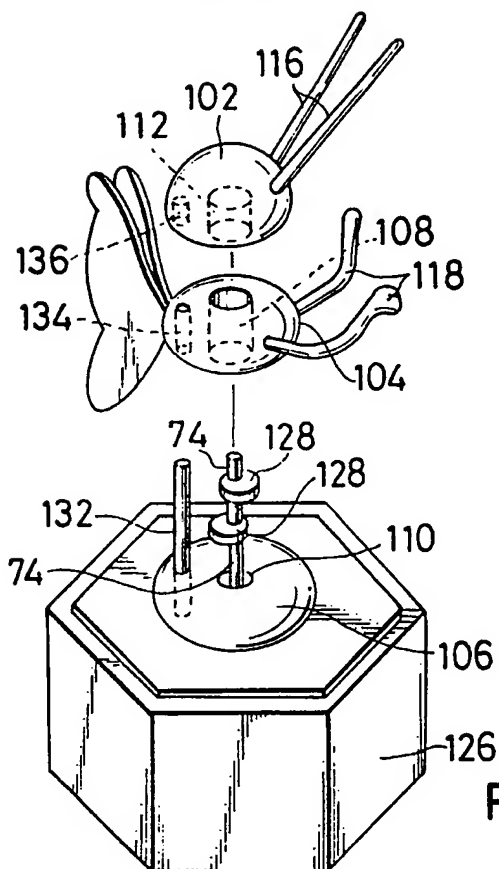


FIG. 9

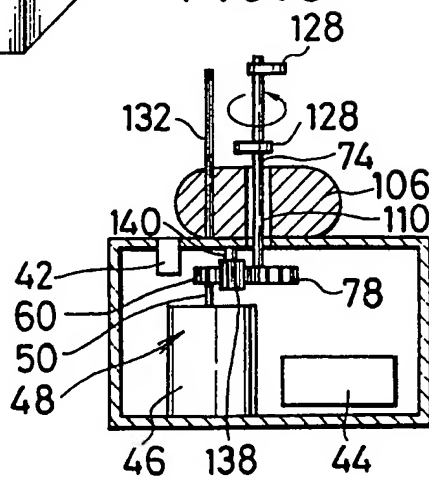


FIG. 10

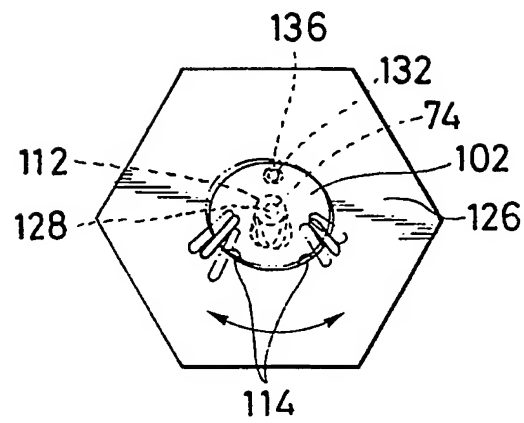


FIG. 11

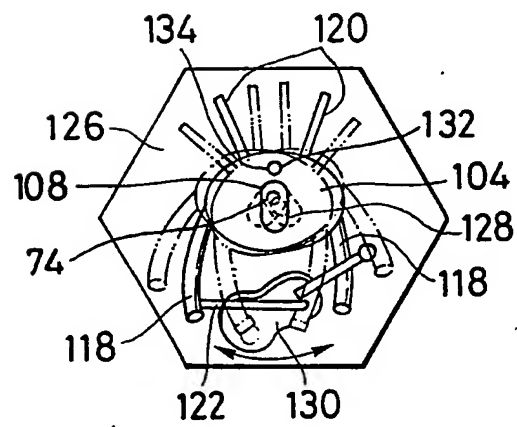


FIG. 12

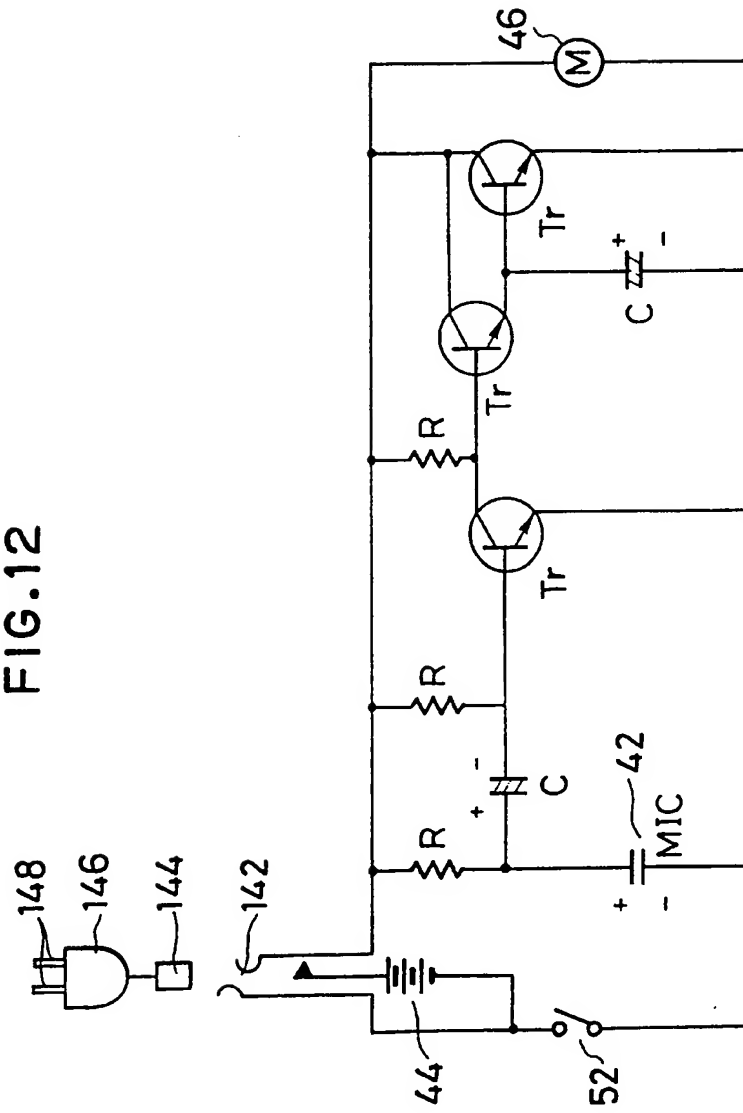


FIG. 13

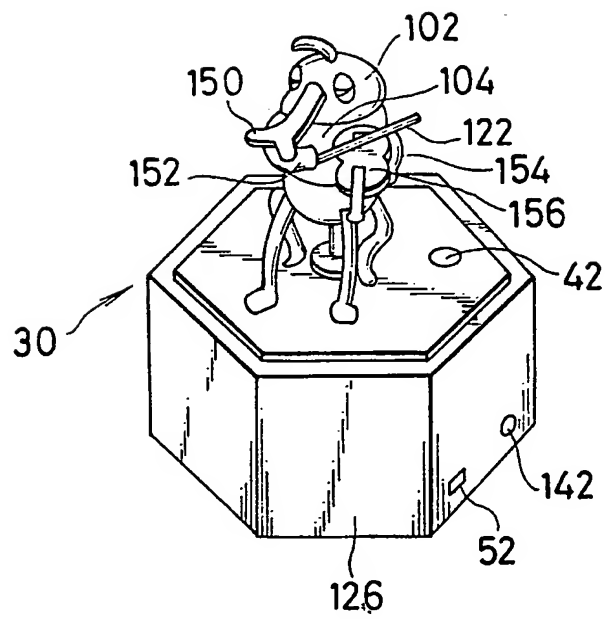


FIG.14

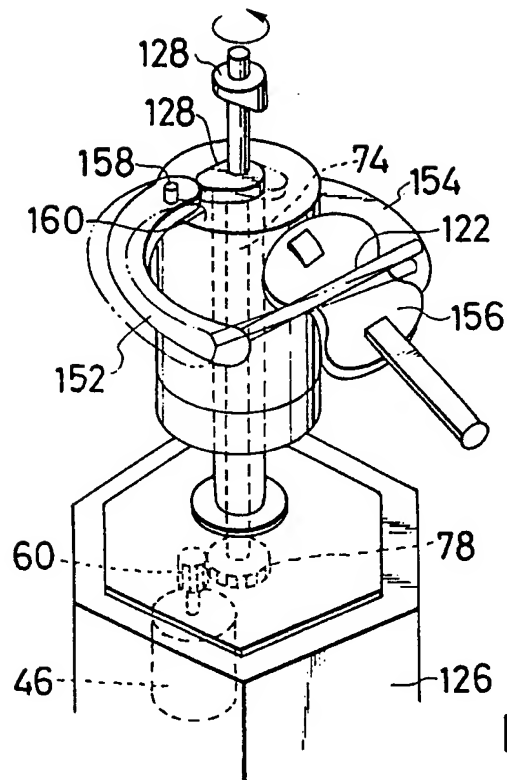


FIG.15

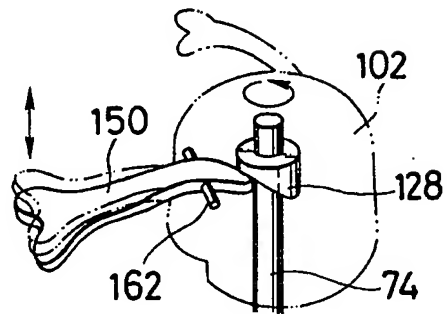


FIG. 16

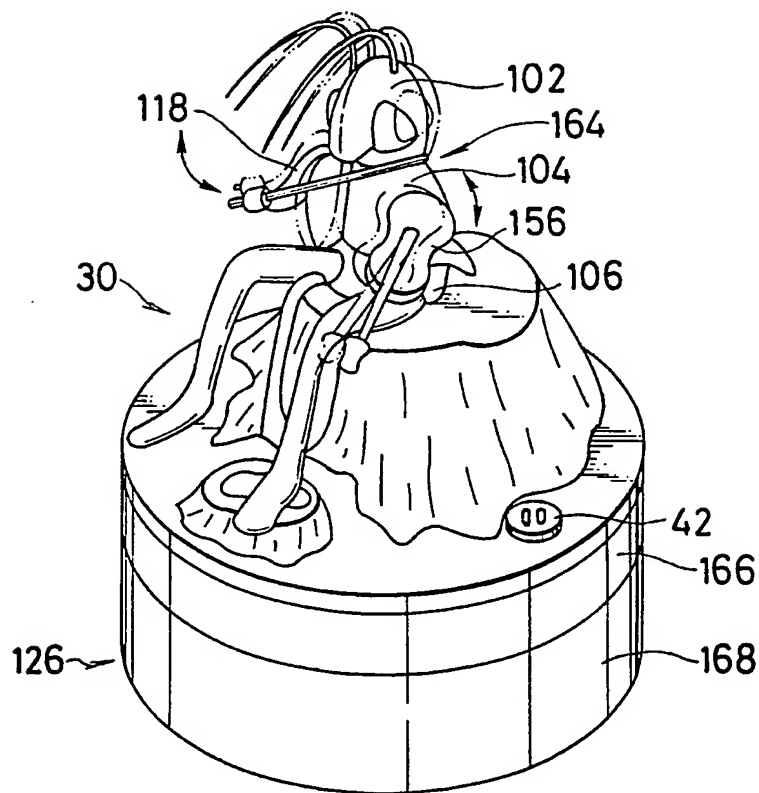


FIG.17

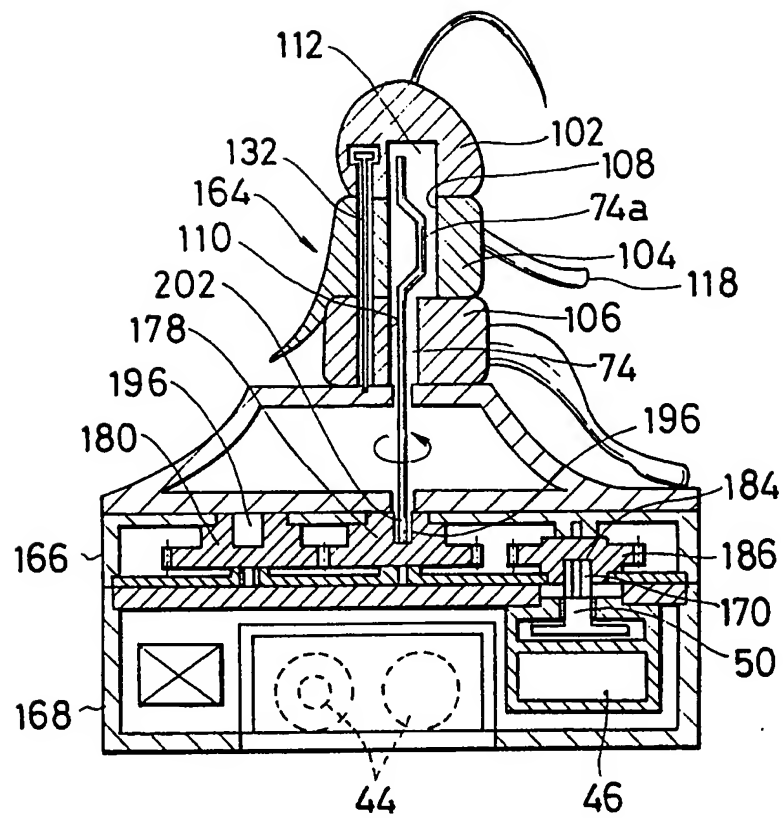


FIG.18

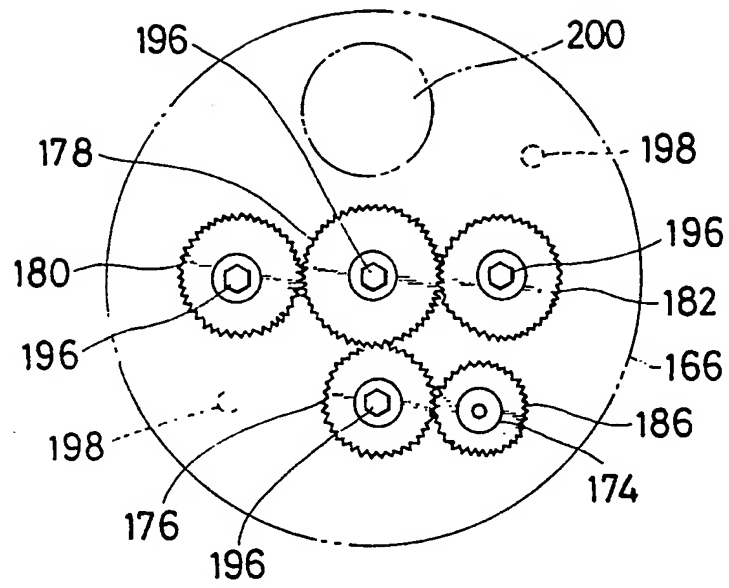


FIG.19

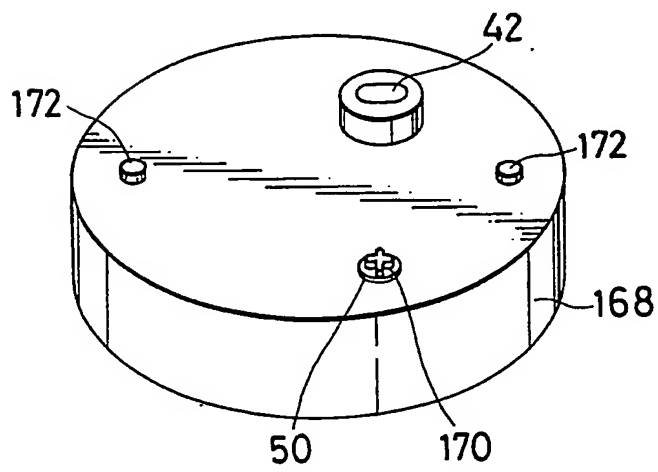


FIG. 20

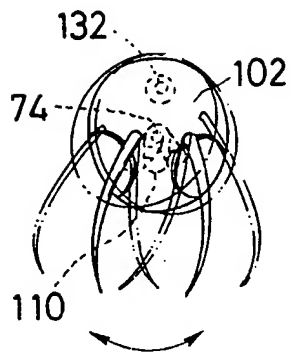


FIG. 21

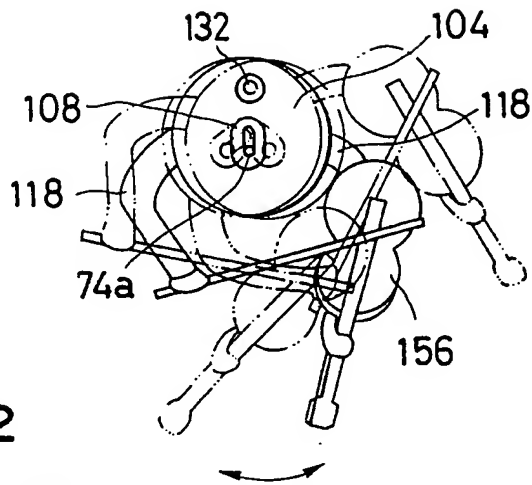


FIG. 22

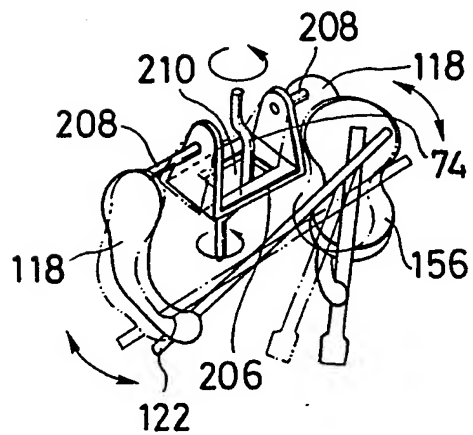


FIG. 23

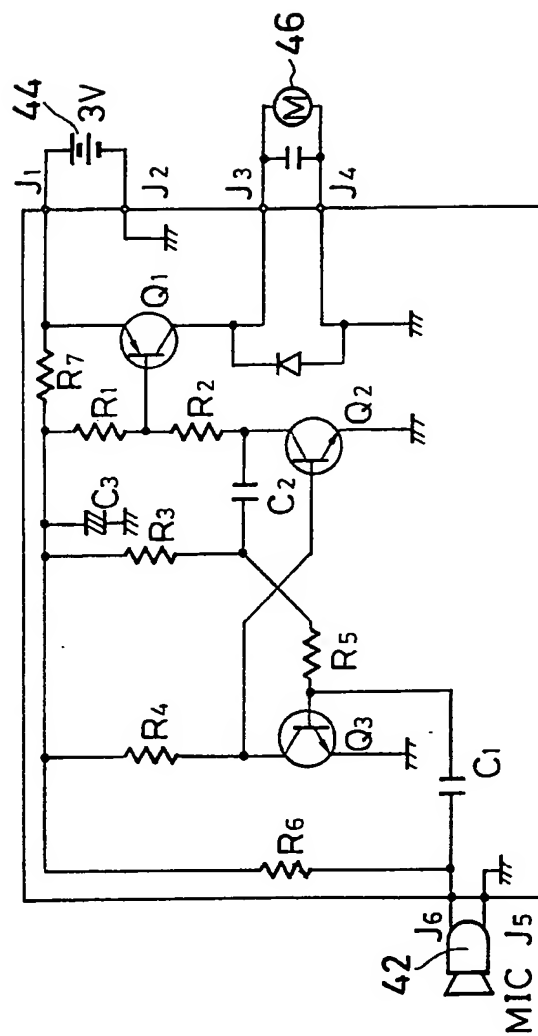


FIG. 24

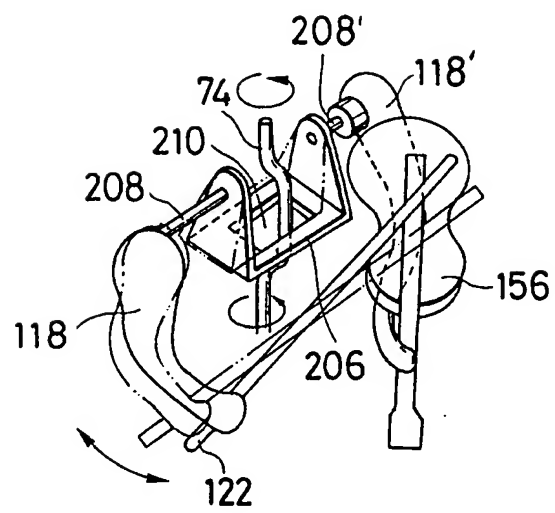


FIG. 25

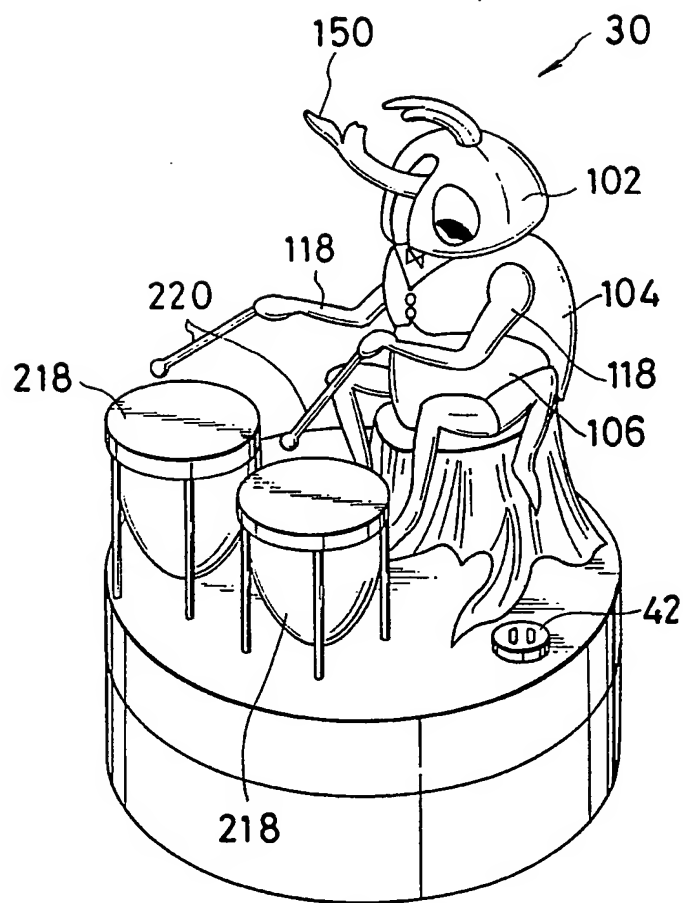


FIG.26

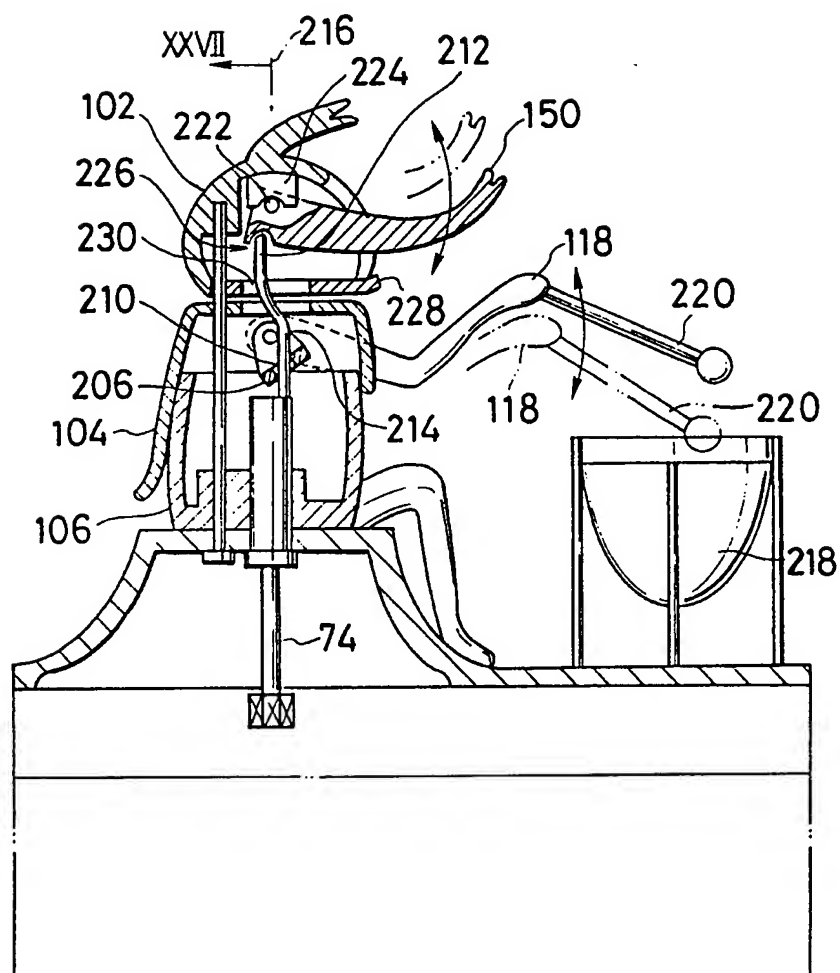


FIG.27

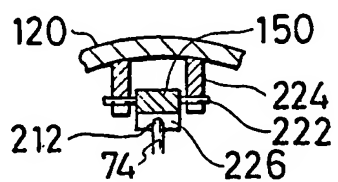


FIG. 28

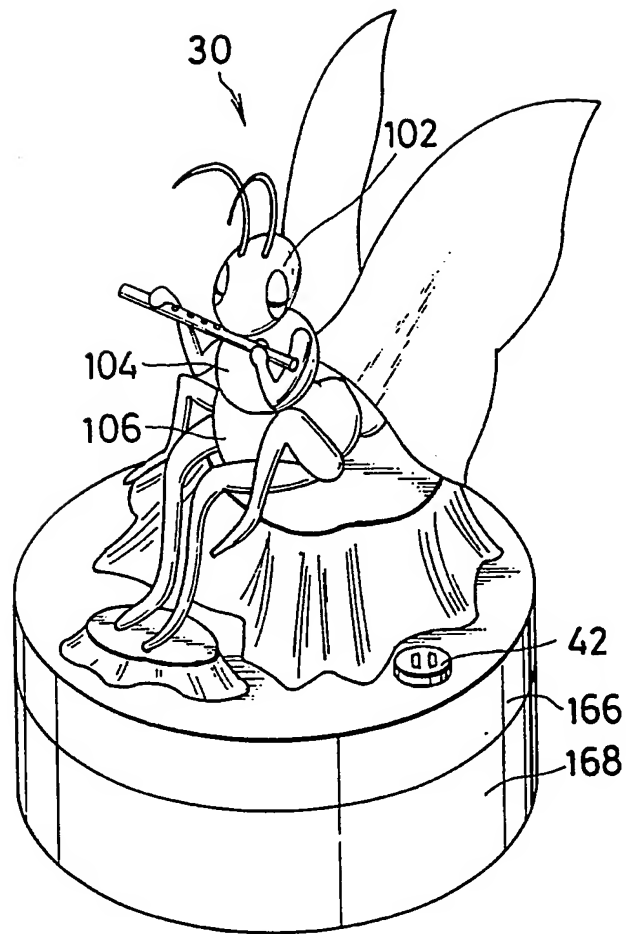


FIG.29

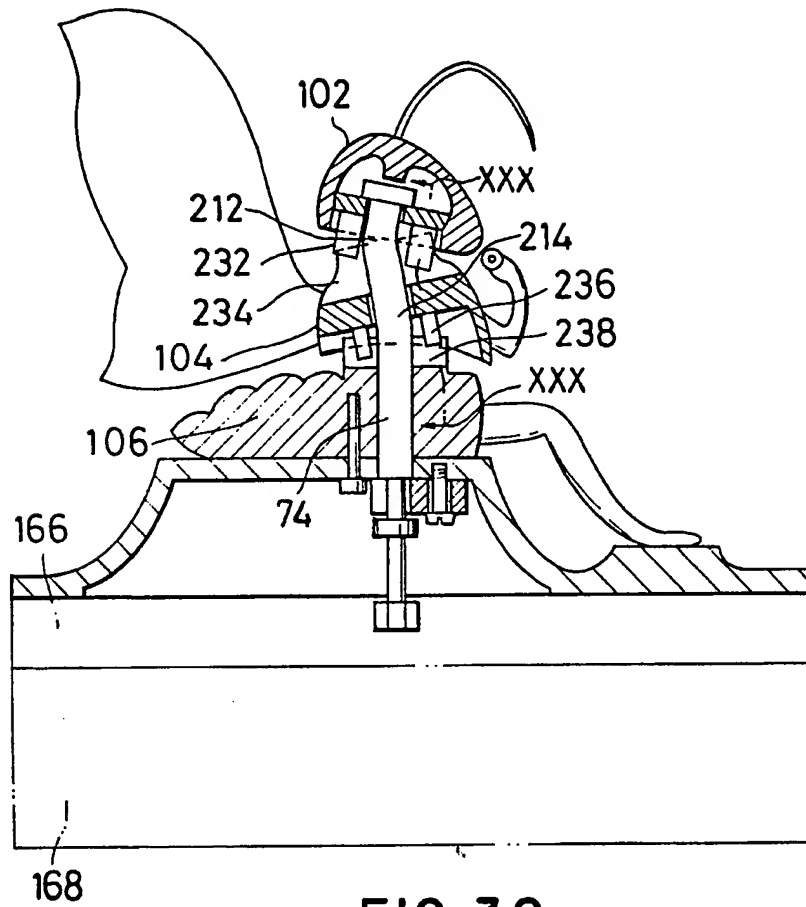
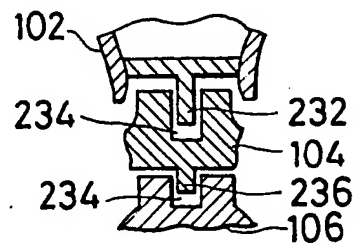


FIG.30



TITLE OF THE INVENTION
MOVABLE DECORATIVE ARTICLE

BACKGROUND OF THE INVENTION

This invention relates to a movable decorative article, and more particularly to a movable decorative article adapted to actuate upon detection of an external stimulus such as sound, light, heat, infrared rays or the like.

Conventionally, it is general knowledge that a doll, an ornament or the like is used in a manner to be stationarily placed in a living space for use as a decorative interior.

However, it is recently attempted to add any additional unique value to such a stationary interior to give a viewer unexpected interest and/or surprise. More particularly, it is desired to develop a decoration which is capable of permitting viewers to have a playing mood and hold communication with each other through the decoration while clearing a conventional narrow conception.

In view of the foregoing, a movable decoration is recently proposed which is so constructed that a revolving core element of a curved or meandering shape is mounted on a base and a hollow member made in imitation of a flower so as to include a stem loosely fitted on the core element and a flower body mounted on the upper end of the stem is moved with the rotation of the core element.

Unfortunately, in the conventional movable decoration, the stem and flower body are formed in a manner to be integral with or continuous to each other. Accordingly, the movement of the movable decoration is simple, resulting in lacking the sense for the real to fail to exhibit interest.

Accordingly, it would be highly desirable to provide a movable decoration which is capable of being moved or actuated in a complicated manner so as to exhibit

the sense for the real sufficient to give a viewer interest and/or surprise.

SUMMARY OF THE INVENTION

Generally speaking, in accordance with the present invention, a movable decorative article is provided. The movable decorative article includes a single core element provided with at least one offset section which is deviated from the central axis of the core element and a plurality of movable elements loosely fitted on the core element. The core element and movable elements constitutes at least a part of a decoration body of the movable decorative article. The movable decorative article also includes a drive mechanism to which the core element is operatively connected; said drive mechanism including a drive source comprising a motor and a drive circuit for said motor; said drive circuit being provided with a sensor switch including a sensor for detecting an external stimulus.

Also, in accordance with the present invention, a movable decorative article is provided. The movable decorative article includes a decoration body, a base on which the decoration body is arranged, and a drive mechanism arranged in the base; said drive mechanism including a drive source comprising a motor and a drive circuit for said motor; said drive circuit being provided with a sensor switch including a sensor for detecting an external stimulus. The decoration body includes a support shaft mounted on the base, a single core element provided with at least one offset section which is deviated from the central axis of the core element and operatively connected to the drive mechanism, and a plurality of movable elements supported on the support shaft and loosely fitted on the core element.

Accordingly, it is an object of the present invention to provide a movable decorative article which is capable of accomplishing motion or movement sufficient to permit viewers to communicate with one another therethrough.

It is another object of the present invention to provide a movable decorative article which is capable of exhibiting the sense for the real sufficient to give a viewer much interest and/or surprise.

It is a further object of the present invention to

provide a movable decorative article which is capable of exhibiting the above-described functions while exhibiting a conventional ornamental effect in its stationary state.

It is still another object of the present invention to provide a movable decorative article which is capable of accomplishing complicated motion.

It is a still further object of the present invention to provide a movable decorative article which is capable of permitting its design to be selected over a wide range.

Still other objects and advantages of the invention will in part be obvious and will in part be apparent from the specification.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the invention will be indicated in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the invention, reference is had to the following description taken in connection with the accompanying drawings; wherein:

Fig. 1 is a perspective view showing an embodiment of a movable decorative article according to the present invention;

Figs. 2A and 2B each are a fragmentary perspective view partly in section showing an essential part of the movable decorative article shown in Fig. 1;

Fig. 3 is a circuit diagram showing an electrical circuit employed in the movable decorative article shown in Fig. 1;

Fig. 4 is a schematic front elevation view showing another embodiment of a movable decorative article according to the present invention;

Fig. 5 is a schematic front elevation view showing

a further embodiment of a movable decorative article according to the present invention;

Fig. 6 is a front perspective view showing still another embodiment of a movable decorative article according to the present invention;

Fig. 7 is a rear perspective view of the movable decorative article shown in Fig. 6;

Fig. 8 is an exploded perspective view of the movable decorative article shown in Fig. 6;

Fig. 9 is a fragmentary vertical sectional view showing an essential part of the movable decorative article shown in Fig. 6;

Figs. 10 and 11 each are a schematic plan view showing the operation of the movable decorative article shown in Fig. 6;

Fig. 12 is a circuit diagram showing an electrical circuit employed in the movable decorative article shown in Fig. 6;

Fig. 13 is a perspective view showing yet another embodiment of a movable decorative article according to the present invention;

Figs. 14 and 15 each are a fragmentary perspective view showing an essential part of the embodiment shown in Fig. 13;

Fig. 16 is a perspective view showing even another embodiment of a movable decorative article according to the present invention;

Fig. 17 is a vertical sectional view of the movable decorative article shown in Fig. 16;

Fig. 18 is a plan view showing an upper base member of a base of the movable decorative article shown in Fig. 16;

Fig. 19 is a perspective view showing a lower base member of a base of the movable decorative article shown in Fig. 16;

Fig. 20 is a plan view showing a head section of

the movable decorative article shown in Fig. 16;

Fig. 21 is a plan view showing the operation of a head section and arms of a trunk section of the movable decorative article shown in Fig. 16;

Fig. 22 is a fragmentary perspective view showing an essential part of the movable decorative article shown in Fig. 16;

Fig. 23 is a circuit diagram showing an electrical circuit employed in the movable decorative article shown in Fig. 16;

Fig. 24 is a fragmentary perspective view showing an essential part of a still further embodiment of a movable decorative article according to the present invention;

Fig. 25 is a perspective view showing a yet further embodiment of a movable decorative article according to the present invention;

Fig. 26 is a vertical sectional view of the movable decorative article shown in Fig. 25;

Fig. 27 is a sectional view taken along line XXVII-XXVII of Fig. 26;

Fig. 28 is a perspective view showing an even further embodiment of a movable decorative article according to the present invention;

Fig. 29 is a vertical sectional view of the movable decorative article shown in Fig. 28; and

Fig. 30 is a sectional view taken along line XXX-XXX of Fig. 29.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Now, a movable decorative article according to the present invention will be described hereinafter with reference to the accompanying drawings, wherein like reference numerals designate like or corresponding parts throughout.

Figs. 1 to 3 show an embodiment of a movable

decorative article according to the present invention. A movable decorative article of the illustrated embodiment generally designated by reference numeral 30 is formed in imitation of a dinosaur. More particularly, the decorative article 30 includes a trunk section 32, a neck section 34 provided at the front portion of the trunk section 32 so as to forwardly extend therefrom, a tail section 36 provided at the rear portion of the trunk section 32 so as to rearwardly extend therefrom, a leg section 38 comprising a pair of legs provided on both sides of the trunk section 32, and a head section 40 connected to the distal end of the neck section 34.

In the trunk section 32, as shown in Fig. 2B, are arranged a sensor switch 42 including a sensor, a power supply 44, a motor 46 and a drive mechanism 48. The motor 46 includes an output shaft 50. In the illustrated embodiment, the drive mechanism 48 is in the form of a revolving drive mechanism. Also, the trunk 32 is provided on the upper portion thereof with a main switch 52.

The revolving drive mechanism 48 is received in a casing 54 arranged in the trunk 32 and includes a gear 56 fixed on a support shaft 58 and engaged with a gear 60 fixed on the output shaft 50 of the motor 46, a gear 62 fixed on a support shaft 64 and engaged with a gear 66 mounted on the support shaft 58 in juxtaposition with the gear 56, and a gear 68 mounted on the support shaft 64 in juxtaposition with the gear 62. Thus, the gears constituting the revolving drive mechanism are rotated with the driving of the motor 46.

The neck section 34 includes a plurality of movable elements 70 each formed with a through-hole 72 and a single core element 74 on which the movable elements 70 are loosely fitted successively and separate from one another. Thus, the movable elements 70 are movable on the core element 74. In the illustrated embodiment, the movable elements 70 each are formed into a substantially spherical

shape. The core element 74 is provided with at least one offset section which is deviated from the central axis of the core element. In the illustrated embodiment, the core element 74 is formed of a flexible or deformable material such as a metal wire and bent or curved at at least a part thereof, resulting in being of a meandering shape. Accordingly, in the illustrated embodiment, the offset section comprises the bent or curved portion of the core element 74. The core element 74 is loosely fitted at the distal end thereof in a hole 76 provided at the head section 40 in a manner not to fall out therefrom. Also, the core element 74 has a proximal end positioned in the casing 10, on which a gear 22 adapted to be engaged with the gear 68 is mounted. Thus, the core element 74 on which the spherical movable elements 70 are loosely fitted in sequence may be revolved in the through-holes 72 of the movable elements 70. The spherical movable elements 70 are preferably formed into different shapes. Also, the movable elements 70 may be put in different colors.

The tail section 36 includes a plurality of spherical elements 80 each formed with a through-hole 82 and a core element 84 on which the spherical elements 80 are loosely fitted via the through-holes 82 in succession. The core element 84 may be formed of a flexible or deformable material. The core element 84 is fixed at the proximal end thereof on the trunk section 32. The spherical elements 80 may be formed into different shapes.

The sensor switch 42, power supply 44, motor 46 and main switch 52 are electrically connected together in such a manner as shown in Fig. 3. This permits the motor 46 to be driven for a predetermined period of time when the sensor switch 42 detects sound of a predetermined level or more.

The drive circuit may be constructed in such a manner that the successive detections of sound by the sensor switch 42 causes the operation and non-operation of

the drive circuit to be alternately carried out. In the illustrated embodiment, the sensor switch 42 includes a sound sensor. However, a sensor for the sensor switch may include a sensor for detecting an external stimulus such as light, heat infrared rays or the like other than sound.

Now, the manner of operation of the movable decorative article 30 of the illustrated embodiment constructed as described above will be described hereinafter with reference to Figs. 1 to 3.

First, the main switch 52 is turned on, resulting in the motor 46 being actuated when the sensor switch 42 detects sound of a predetermined level or more. The gear 60 fixed on the output shaft 50 of the motor 46 is engaged with the gear 56 which is one of the gears constituting the revolving drive mechanism, so that the mechanism may be driven to revolve the core element 74 in the through-holes 72 of the movable elements 70.

When the core element 74 is thus revolved, the neck section 34 constituted by spherical movable elements 70 fitted on the core element 74 is moved in a meandering manner according to the configuration of the core element 74 bent or curved, so that the movable decorative article may be successively varied in configuration, resulting in a viewer taking interest and/or surprise. Such interest and/or surprise may be enhanced by putting the movable elements 70 in different colors. This also permits the decorative article to exhibit aesthetic characteristics.

Also, in the illustrated embodiment, the drive circuit includes the motor 46 acting as a drive source and the sensor switch 42 reacting on sound, so that the decorative article may be driven in response to, for example, hand clapping. This causes a clapper to be impressed as if the movable decorative article is alive and there is any communication between the clapper and the article.

In the illustrated embodiment, the revolving drive

mechanism is employed. However, the drive mechanism may comprise a reciprocating drive mechanism.

Fig. 4 shows another embodiment of a movable decorative article according to the present invention. A movable decorative article 30 shown in Fig. 5 is made in imitation of a doll. More particularly, it includes a waist section 86, a leg section 88 comprising pair of legs integrally provided on the lower side of the waist section 86, a trunk section 90 provided at the center of the upper portion of the waist section 86 so as to upwardly extend therefrom, an arm section 92 comprising a pair of arms arranged on both sides of the upper portion of the trunk section 90 in a manner to be integral with each other, a head section 94 mounted on the distal or upper end of the trunk section 90.

The trunk section 90 includes a plurality of movable elements 70 each formed with a through-hole 72 and a core element 74 on which the movable elements 70 are loosely fitted via the through-hole 72 in succession and separate from each other. The core element 74 is bent or curved at at least a part thereof. Thus, in the illustrated embodiment, an offset section comprises the bent portion of the core element 74. Also, in the illustrated embodiment, the movable elements 70 each are formed into a substantially spherical shape and the core element 74 is made of a flexible or deformable material such a metal wire. The core element 74 is fitted via a through-hole 96 formed at the central portion of the arm section 92 into a hole 98 formed at the head section 94 in a manner not to fall out therefrom. The lower or proximal end of the core element 74 is positioned in a casing 54 and provided with a gear 78 engaged with a gear 68 of a revolving drive mechanism 48 received in the casing 54. This causes the core element 74 to be revolved in the through-holes 72 of the movable elements 72 arranged in succession because the elements 72 are loosely fitted on

the element 74.

Thus, it will be noted that the illustrated embodiment exhibits a function and an effect similar to those of the embodiment of Fig. 1 described above.

Fig. 5 shows a further embodiment of a movable decorative article according to the present invention.

A movable decorative article 30 of the illustrated embodiment is made in imitation of a tree. More particularly, it includes a core element 74 operatively connected at the lower or proximal end thereof to a revolving drive mechanism 48. Also, the article includes a plurality of spherical movable elements 70 on the core element 74 and branches 100 which are loosely fitted on the core element 84 in an alternate manner. Also, the article 30 includes a head section 94' mounted on the upper or distal end of the core element 74. The core element 74 is curved at at least a part thereof, although the bent portion is not indicated in Fig. 5. Thus, it will be noted that the embodiment exhibits a function similar to the embodiment of Fig. 4.

Figs. 6 to 12 show still another embodiment of a movable decorative article according to the present invention. A movable decorative article 30 of the illustrated embodiment is made in imitation of a butterfly and generally includes a head section 102, a trunk section 104 and a waist section 106 each comprising a single movable element 70 of a substantially spherical shape. The trunk section 104 and waist section 106 are formed with through-holes 108 and 110, respectively, and the head section 102 is formed at the lower side thereof with a hole or recess 112. The head section 102 is provided with eyes 114 and feelers 116 and the trunk section 104 is provided with forelegs or arms 118 and alae 120. On one of the forelegs 118 is mounted a bow 122. Also, the waist section 106 is provided a pair of hind legs 124.

The movable decorative article 30 of the embodiment

also includes a common core element 74 on which the head section 102, waist section 106 and trunk section 104 are loosely fitted via the through-holes 108 and 110 and hole 112 in succession and separate from each other, respectively. The core element 74 has a proximal end positioned in a base 126 and provided with a gear 78. Also, the core element 74 is provided with two offset sections. For this purpose, the core element 74 is provided thereon with two cam means 128 adapted to be positioned in the through-hole 108 of the trunk section 104 and the hole 112 of the head section 102, respectively. Thus, in the illustrated embodiment, the offset sections comprise the cam means 128 mounted on the core element 74. On the base 44 is mounted a viola 130.

The waist section 106 is fixedly mounted on a base 126, and on the base 126 is mounted a support rod 132 so as to upwardly extend therefrom through the waist section 106. Then, the support rod 132 extend through the trunk section 108 to the head section 102 while being loosely fitted in a through-hole 134 of the trunk section 104 and a hole or recess 136 of the head section 102, resulting in the waist section 106 and head section 102 being moved with respect to the support rod 132. Thus, the revolution of the core element 74 causes the cam members 128 of the core element 74 to laterally reciprocate the head section 102 and trunk section 104 about the support rod 132, so that the decorative article 30 may be actuated as if a butterfly plays a viola. The head section 102 and trunk section 104 are preferably supported on the support rod 132 in a manner to be prevented from falling out therefrom.

In the base 126 are arranged a sensor switch 42 including a sensor, a power supply 44, a motor 46, a revolving drive mechanism 48 including a gear 138 fixed on a support shaft 140 and engaged with a gear 60 fixed on an output shaft 50 of the motor 46. The above-described gear 78 mounted on the lower or proximal end of the core element

74 is engaged with the gear 138 of the drive mechanism 48. The sensor switch 42 is arranged so as to project at a part thereof from the upper surface of the base 126, as shown in Fig. 7. On the side surface of the base 126 are arranged a main switch 52 and a jack 142 for an AC power supply to which a connector 144 of an AC adapter 146 is to be connected as shown in Fig. 12.

The AC adapter 146 includes a connection 148 adapted to be plugged in a domestic plug socket and a converter section (not shown) provided therein with a voltage transforming circuit and a rectifying circuit.

In the movable decorative article of the illustrated embodiment constructed as described above, when the sensor switch 42 detects sound of a predetermined level or more while the main switch 52 is turned on, the motor 46 is driven to revolve the core element 74 in the head section 102, trunk section 104 and waist section 106 through the revolving drive mechanism 48. Such rotation of the core element 74 causes the rotation of the cam members 128, to thereby laterally reciprocate the head section 102 and trunk section 104 about the support rod 132. Thus, a viewer is impressed as if a butterfly plays a viola, resulting in taking unexpected interest and surprise.

Also, in the illustrated embodiment, the drive circuit includes the motor 46 serving as a drive source and the sensor switch 9 reacting on sound, so that the movable decorative article may be actuated in response to, for example, hand clapping. This causes a clapper to be impressed as if the movable decorative article is alive and there is any communication between the clapper and the article.

Also, the article 30 of the embodiment may use a domestic power supply, accordingly, it is utilized in various places and exhibits an economical advantage.

Figs. 13 to 15 show yet another embodiment of a movable decorative article according to the present

invention. A movable decorative article 30 shown in Figs. 13 to 15 is made in imitation of a beetle and so constructed that a horn 150 provided at a head section 102 and a right foreleg or arm 152 is arranged on a trunk section 104 so as to be movable. On the movable arm 152 is carried a bow 122. The article 30 also includes a left arm 154, on which a violin 156 is carried.

The horn 150 and foreleg 152 are pressedly engaged with cam members 128 upon rotation of a core element 74, to thereby be moved or actuated. This causes the foreleg 152 to be pivotally moved about a support pin 158 supported on the trunk section 104 against an elastic force of a resilient member 160 wound on the support pin 158 and the horn 150 to be vertically moved about a horizontal support pin 162 mounted on the head section 102. A drive circuit for a motor 46 for revolving the core element 74 may be constructed in substantially the same manner as shown in Fig. 12 and includes a main switch 52 and a sensor switch 42 as well. The left foreleg or arm 154 is stationarily held on the trunk section 104.

Thus, the movable decorative article 30 of the illustrated embodiment exhibits a function and an effect similar to those of the above-described embodiments.

Figs. 16 to 23 show a still further embodiment of a movable decorative article according to the present invention. A movable decorative article of the illustrated embodiment generally indicated at reference numeral 30 generally is made in imitation of a glasshopper and includes a base 126 and a decoration body 164 arranged or supported on the base 126.

The base 126 comprises an upper base member 166 and a lower base member 168 which are detachably connected to each other. In the lower base member 168 are arranged a sensor switch 42 including a sound sensor and a motor 46 operated and controlled due to the actuation of the sensor switch 42. The motor 46 includes an output shaft 50 of

which the upper portion upwardly extends from the upper surface of the lower base member 168. The output shaft 50, as shown in Fig. 19, is formed on the upper end surface thereof with a cross projection 170. The sound sensor switch 42, as shown in Fig. 16, is arranged so as to project at the upper portion thereof from the base 126. The lower base member 168 is provided on its upper surface with positioning projections 172.

The movable decorative article 30 of the illustrated embodiment also includes a drive mechanism 48 of which a drive source comprises the motor 46 and which is arranged in the upper base member 166. More particularly, as shown in Fig. 18, the drive mechanism 48 arranged in the upper base member 166 includes an input shaft 174 acting as input means of the drive mechanism 48 and four or first to fourth output gears 176, 178, 180 and 182 acting as output means of the drive mechanism 48. The input shaft 174 is formed on the lower end surface thereof with a cross groove 184 as shown in Fig. 17, which is engaged with the cross projection 170 of the output shaft 50 of the motor 46 to accomplish the operative connection between the output shaft 50 and the input shaft 174. Also, on the input shaft 174 is fixedly mounted a gear 186, which is engaged with the first output gear 176. The gear 176 is then engaged with the second output gear 178, which is then concurrently engaged with the third and fourth output gears 180 and 182. The four output gears each are formed on the central portion of the upper surface thereof with a polygonal recess 196. The upper base member 166 is formed on the lower surface thereof with recesses 198 in which the projections 172 of the lower base member 168 are engagedly received for aligning both members with each other when they are connected together. Also, the upper base member 166 is formed with a vertical through-hole 200 via which the sensor switch 42 is inserted.

In the illustrated embodiment, the movable

decoration body 164 is made in imitation of a glasshopper. For this purpose, it includes a single revolving core element 74 provided with at least one offset section of which the center is deviated from the central axis of the core element 74. In the illustrated embodiment, the offset section comprises a bent portion 74a of the core element formed by bending at least a part of the core element 74. The core element 74, as shown in Fig. 17, is fixedly provided at the lower end thereof with a mechanical connection 202, which is engagedly received in the recess 196 of the second output gear 190. The decoration body 164 also includes movable elements formed separate from each other and constituting a head section 102, a trunk section 104 and a waist section 106. The movable elements 102, 104 and 106 are vertically supported on a support rod 132 mounted on the upper base member 166 of the base 126 so as to upwardly extend therefrom. Also, the trunk section 104 and waist section 106 are formed with vertical through-holes 108 and 110 and the head section 102 is formed at the lower side thereof with a hole or recess 112 in a manner to be aligned with the through-holes 108 and 110. The sections 102, 104 and 106 are loosely fitted on the core element 74 via the through-holes 108 and 110 and hole 112 while the bent portion 74a of the core element 74 is positioned in at least one of the hole 112 of the head section 102, the through-hole 110 of the trunk section 106 and the through-hole 110 of the waist section 106. Thus, when the core element 74 is revolved through the drive mechanism 48, the side surface of at least one of the holes 108, 110 and 112 is pressedly abutted against the core element 74 provided with the bent portion 74a, so that the movable decorative article may be moved. In the illustrated embodiment, the bent portion 74a is positioned in the trunk section 104.

The trunk section 104 is provided on both sides thereof with a foreleg or arm section comprising a pair of

forelegs or arms 118. Also, the trunk section 104 is provided therein with a substantially U-shaped support member 208 in a manner to be pivotally movable in the trunk section, as shown in Fig. 22. On each of both sides or vertical portions of the support member 208 is mounted a horizontal support shaft 208 in a manner to outwardly extend therefrom. The arms 118, as shown in Fig. 22, each are securely mounted on the outer end of the horizontal support shaft 208 so as to be movable back and forth about the support shaft 208 with the movement of the shaft 208. The support member 206 is formed at the horizontal base portion thereof with an aperture 210 through which the bent portion 74a of the core element 74 is loosely fitted, so that the bent portion 74a of the core element 74 is forcedly abutted against the support member 206 when the core element 74 is revolved through the drive mechanism 48, resulting in the arms 118 being moved back and forth through the support shafts 208 with the pivotal movement of the support member 206. The arms 118 are provided with a bow 122 and a violin 31, respectively.

The motor 46, as shown in Fig. 23, is adapted to be driven when the sound sensor switch 42 detects sound of a predetermined level or more while a main switch is turned on. The drive force of the motor 46 is transmitted through the output shaft 50 of the motor 46 to the input gear 186, leading to the rotation of the output gears 176, 178, 180 and 182. This causes the core element 74 to be revolved in the head section 102, trunk section 104 and waist section 106.

In the movable decorative article of the illustrated embodiment constructed as described above, the motor 46 is actuated when the sound sensor switch detects sound, so that the input gear 186 is rotated to rotate the output gears 176, 178, 180 and 182. This causes the core element 74 to be revolved because it is operatively engaged with the output gear 178. The revolution of the core

element 74 causes the head section 102, trunk section 104 and waist section 106 to be concurrently and separately moved about the vertical support rod 132, because the core element 74 is forcedly abutted through the bent portion 74a against them.

Also, the core element 74 is inserted through the movable U-shaped support member 206 on which the arms 118 are mounted through the support shaft 208. Thus, the revolution of the core element 74 also causes the arms 118 to be moved back and forth about the support shafts 208.

Thus, it will be noted that the movable decorative article exhibits substantially the same effect as the above-described embodiments.

Fig. 24 shows an essential part of a yet further embodiment of a movable decorative article according to the present invention. The embodiment shown in Figs. 16 to 23, as described above, is so constructed that both arms 118 are concurrently actuated. In an article shown in Fig. 24, only one of arms 118 is adapted to be actuated. In the illustrated embodiment, only a right arm 118 on which a bow 122 is carried is actuated and a left arm 118' on which a violin 156 is carried is kept stationary. For this purpose, the arm 118' is fixed at the proximal end thereof on a trunk section (not shown) in a suitable manner. A support shaft 208' may be connected to the arm 118' in a manner to be rotatable with respect to the arm 118'. Thus, the revolution of a core element 74 causes only the arm 118 to be moved back and forth through a support shaft 208 with the movement of a support member 206. Such construction permits the playing of a violin 156 to more exhibit actuality.

The remaining part of the embodiment may be constructed in substantially the same manner as that shown in Figs. 16 to 23.

Figs. 25 to 27 show an even further embodiment of a movable decorative article according to the present

invention. An article 30 of the illustrated embodiment is made in imitation of a beetle which strikes timpani. In the illustrated embodiment, a core element 74 is provided with two offset sections formed by bending the core element 74 in such a manner that the centers of the distal or upper portion 212 and intermediate portion 214 of the core element 74 are deviated from the central axis 216 of the core element 74 in directions opposite to each other about the central axis as shown in Fig. 26. Thus, in the illustrated embodiment, the offset sections comprise the upper deviated portion 212 and intermediate deviated portion 214 of the core element 74. The intermediate deviated portion 214 is positioned in a waist section 106 and a trunk section 104 and the upper deviated portion 212 is positioned in a head section 102. The intermediate deviated portion 214 of the core element 74 is inserted through an aperture 210 of a support member 206, so that the revolution of the core element 74 causes the intermediate deviated portion 214 to be forcedly abutted against the support member 206. This causes the support member 206 to be pivotally moved to vertically pivotally move arms 118 as shown in Fig. 26, resulting in the arms 118 striking timpani 218 through sticks 220.

In the head section 102 is arranged a horn 150 so as to outwardly extend from the head section 102 and be moved at both interior and exterior of the head section 102. The horn 150, as shown in Fig. 27, is supported at the proximal end thereof on a horizontal pin 222 provided through support means 224 in the head section 102 so that the distal end of the horn 150 may be vertically pivotally movable about the pin 222 as shown in Fig. 26. The horn 150 is formed at the lower side of the proximal end thereof with a hole or recess 226, in which the distal end of the upper deviated portion 212 is loosely fitted. Thus, the revolution of the upper deviated portion 212 causes the horn 150 to be vertically pivotally moved about the pin

222.

Also, the head section 102 has a bottom wall 228 formed with an aperture 230, through which the upper deviated portion 212 is loosely fitted so that the revolution of the portion 212 causes it to be forcedly abutted against the bottom wall 228, resulting in the head section 102 being moved.

The head section 102, trunk section 104 and waist section 106 each are formed into a substantially hollow shape. In the illustrated embodiment, the trunk section 104 and waist section 106 are kept stationary.

The remaining part of the illustrated embodiment may be constructed in substantially the same manner as the embodiment shown in Fig. 16.

Figs. 28 to 30 shows another embodiment of a movable decorative article according to the present invention. A movable decorative article 30 is made in imitation of a butterfly which plays a flute. In the illustrated embodiment, a core element 74 is provided with two offset sections formed by bending the intermediate portion 214 and upper portion 216 of the core element 74 at angles in directions different from each other. Thus, in the illustrated embodiment, the offset sections comprise the upper bent portion 212 and intermediate bent portion 214 of the core element 74. A head section 102 is fitted on the upper bent portion 212 and a trunk-section 104 is fitted on the intermediate bent portion 214. The core element 74 is loosely fitted in a waist section 106 and the trunk section 104 and head section 102. Between the head section 102 and the trunk section 104 is arranged a combination of projections 232 and a recess 234 so as to prevent the sections from being rotated when the core element is revolved. Likewise, between the trunk section 104 and the waist section 106 is arranged a combination of projections 236 and recesses 238 so as to prevent the rotation of both sections. Such construction permits the

head section 102 and trunk section 104 to carry out meandering movement independent from each other when the core element 74 is revolved.

The remaining part of the illustrated embodiment may be constructed in substantially the same manner as the embodiment shown in Fig. 25.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all the generic and specific features of the invention herein described and all statement of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Claims

1. A movable decorative article comprising:
a single core element provided with at least one offset section which is deviated from the central axis of said core element;
a plurality of movable elements loosely fitted on said core element;
said core element and movable elements constituting at least a part of a decoration body of said movable decorative article; and
a drive mechanism to which said core element is operatively connected; said drive mechanism including a drive source comprising a motor and a drive circuit for said motor; said drive circuit being provided with a sensor switch including a sensor for detecting an external stimulus.
2. A movable decorative article as defined in Claim 1, wherein said offset section is formed by bending said core element.
3. A movable decorative article as defined in Claim 1, wherein said offset section comprises cam means provided on said core element in a manner to correspond to at least one of said movable elements.
4. A movable decorative article as defined in Claim 1, wherein said drive mechanism is arranged in said decoration body.
5. A movable decorative article as defined in Claim 1, wherein said core element is formed at at least a part thereof in a meandering shape.
6. A movable decorative article as defined in claim 1 or 5, wherein said movable elements each are formed into a substantially spherical shape.
7. A movable decorative article as defined in Claim 1, wherein said drive mechanism is a rotating drive mechanism for rotating said core element;
said rotating drive mechanism including a drive source comprising a motor and a drive circuit for said motor;
said drive circuit being provided with a sensor

switch including a sensor for detecting an external stimulus.

8. A movable decorative article as defined in Claim 7, wherein said external stimulus is selected from the group consisting of sound, light, heat and infrared rays.

9. A movable decorative article as defined in Claim 1, wherein said drive mechanism is a reciprocating drive mechanism for reciprocating said core element;

said reciprocating drive mechanism including a drive source comprising a motor and a drive circuit for said motor;

said drive circuit being provided with a sensor switch including a sensor for detecting an external stimulus.

10. A movable decorative article as defined in Claim 9, wherein said movable elements are formed into different shapes.

11. A movable decorative article as defined in Claim 6, wherein said movable elements are put in different colors.

12. A movable decorative article as defined in Claim 1 further comprising a base and a single support shaft mounted on said base;

said movable elements being supported on said support shaft;

said drive mechanism being arranged in said base.

13. A movable decorative article as defined in Claim 12, wherein said drive mechanism includes a drive source comprising a motor and a drive circuit for said motor;

said drive circuit being provided with a sensor switch including a sensor for detecting an external stimulus.

14. A movable decorative article comprising:
a single core element provided with at least one

bent portion;

a plurality of movable elements loosely fitted on said core element;

said core element and movable elements constituting at least a part of a decoration body of said movable decorative article; and

a drive mechanism to which said core element is operatively connected; said drive mechanism including a drive source comprising a motor and a drive circuit for said motor; said drive circuit being provided with a sensor switch including a sensor for detecting an external stimulus.

15. A movable decorative article comprising:

a single core element;

at least one cam means provided on said core element;

a plurality of movable elements loosely fitted on said core element;

said cam means being positioned in at least one of said movable elements;

said core element and movable elements constituting at least a part of a decoration body of said movable decorative article; and

a drive mechanism to which said core element is operatively connected; said drive mechanism including a drive source comprising a motor and a drive circuit for said motor; said drive circuit being provided with a sensor switch including a sensor for detecting an external stimulus.

16. A movable decorative article comprising:

a decoration body; and

a base on which said decoration body is arranged;

and

a drive mechanism arranged in said base; said drive mechanism including a drive source comprising a motor and a drive circuit for said motor; said drive circuit being provided with a sensor switch including a sensor for detecting an external stimulus.

said decoration body comprising a support shaft mounted on said base, a single core element provided with at least one offset section which is deviated from the central axis of said core element and operatively connected to said drive mechanism, and a plurality of movable elements supported on said support shaft and loosely fitted

on said core element.

17. A movable decorative article as defined in Claim 16, wherein said decoration body takes the form of an insect;

said movable elements being formed so as to constitute a head section, a trunk section and a waist section of said insect;

said offset section being formed by bending said core element and positioned in each of said head section and trunk section.

18. A movable decoration article as defined in Claim 17, wherein said decoration body is made in imitation of a glasshopper;

said trunk section being provided on both sides thereof a pair of arms;

at least one of said arms being operatively connected to said core element so as to be actuated when said core element is driven.

19. A movable decoration article as defined in Claim 17, wherein said decoration body is made in imitation of a beetle;

said trunk section being provided on both sides thereof a pair of arms and said head section being provided with a horn;

said arms and horn being operatively connected to said core element so as to be actuated when said core element is driven.

20. A movable decoration article as defined in Claim 17, wherein said decoration body is made in imitation of a butterfly;

said trunk section being provided on both sides thereof a pair of arms;

said arms being operatively connected to said core element so as to be actuated when said core element is driven.

21. A movable decoration article substantially as defined herein, with respect to any of Figures 1 - 30 of the accompanying drawings.